

NAVAL WAR COLLEGE
Newport, Rhode Island

RISK MANAGEMENT AND THE JOINT MILITARY COMMANDER

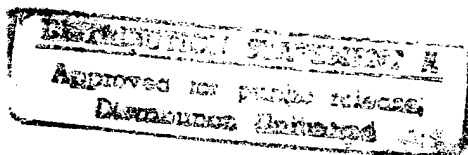
by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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ABSTRACT

Professional stunt artists of the motion picture industry specialize in taking risks. While creating action-packed, thrilling scenes they provide the producers, directors and writers artistic freedom in creating spectacular moments in drama. Off camera, stunt artists apply some of the most strict safety and risk management methods found in any profession. Though risks for stunt artists are high, what could contain more risks than engaging in actual armed conflict?

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Introduction

Among many considerations, **operational art** requires commanders at the operational level to answer four fundamental questions: (1) What **military** (or related political and social) **conditions** must be produced in the operational area to achieve the strategic goal? (2) What **sequence of actions** is most likely to produce that condition? (3) How should the **resources** of the joint force be applied to accomplish that sequence of actions? (4) What is the likely **cost or risk** to the joint force in performing that sequence of actions?¹ Question number four is the focus of this discussion.

Risks, tangible and intangible, are a fundamental part of everyday life, and especially of all military operations. Risk is the probability and severity of loss linked to various *hazards*. The identification of hazards and their impact is called a *risk assessment*. The *control* of hazards, having been identified during risk assessment, is the process called *risk management*.² Practiced repeatedly, personal and professional risk management can become "*common sense*". However, "common sense" is not the only weapon strategic-operational and tactical commanders and planners have in their arsenals for managing the risks of war and military operations other than war (MOOTW).

Textbook Risk Decision-Making

Risk management professionals identify three archetypal approaches to acceptable risk decisions: **Formal Analysis**, **Bootstrapping**, and **Professional Judgment**.

Managing risk with **Formal Analysis** is traditionally referred to as cost-benefit analysis. It attempts to identify the option with the greatest preponderance of benefits over costs.

It also uses a “divide and conquer” methodology by decomposing complex problems into more manageable components. Formal analysis uses many other techniques, their descriptions being outside the scope of this discussion, but purveyors of formal analysis tout its rigor, comprehensiveness, and scrutability. Whatever theoretical appeal formal analysis may have, the technical difficulties of conducting analysis in numerous military settings have led some observers to despair.³ (i.e., a comprehensive formula or “cookie cutter” approach for acceptable risk decisions seems impracticable given the complexities and occasional *time restraints* in planning and executing joint military operations.)

Bootstrapping is an alternative approach producing a quantitative answer without recourse to complicated formula by first identifying and then continuing policies that have evolved over time. Proponents of this family of approaches argue that one achieves a reasonable balance between risks and benefits only through a protracted period of hands-on experience. The safety levels achieved with old risks provide the best guide for how to manage new risks. The balance between costs and benefits is then enshrined in future decisions so that practitioners can short-circuit the learning-and-adjustment process and, in effect, lift themselves up by their own *bootstraps*.⁴

Finally, a response to the possibility that there is no one formula for determining “how safe is safe enough” is to rely on the **Professional Judgment** of the technical expert most knowledgeable in a field. Often a commander’s own “best judgment” is the final arbiter of whether to accept the risks associated with an option, that is why he or she is paid “the big bucks.” However, there is no necessary link between expertise in a substantive area and expertise in decision making.⁵ History is replete with commanders who have made better decisions than others.

Pure-form methods described above, deliberate hybrids, and mixed methods are how risk decisions are made in today's military.⁶ Regardless, the qualities desired in *any* method used to manage risks should be:

comprehensive

logically sound

practical

open to evaluation

politically acceptable

compatible with the military

conducive to learning⁷

These qualities are a litmus test for an adopted risk management process and will ensure its viability within each level of an organization. Risk management is a process—a *way* of thinking.

Risk Management for Everyone?

Currently, there are several initiatives for adopting risk management within the military, at all levels of military operations—strategic, operational, and tactical.

The US Army (USA) is the lead service on military risk management development. The US Navy, Marine Corps and Air Force have their initiatives in development, and each has used the USA process as its foundation. Focusing on the USA program will represent the general efforts underway in the other services.⁸

The USA developed its risk management process to identify and control hazards that may result in casualties to personnel and equipment while accomplishing an objective or mission. It is a ***Five Step Process*** from which users develop tools, techniques, and procedures for applying risk management in their areas of responsibility.

It was designed to be a “*closed-loop process*” that is, usable on any mission, any time, any place by anyone.

Step #1 Identify Hazards - This step involves identifying the most probable hazards in a mission. *Hazards* are conditions with the potential of causing injury to personnel, damage to equipment, loss of materiel, or reducing of ability to perform a task or mission.

Step #2 Assess Hazards - This action can range from simple to complex. It can be done formally, during deliberate planning or informally while making a hasty plan. Conducting risk assessment, leaders identify the hazards and threats--then determine their relative impact on the mission they are planning.

Step #3 Develop Controls and Make Risk Decisions - Here the risks are weighed against the benefits of performing the operation. The risk decision will accept or not accept the risk(s) associated with an action, and is made by the commander, leaders, or individual responsible for performing a mission. *Controls* are actions taken to eliminate hazards or reduce their risk. Controls are identified and selected until residual risk is at an acceptable level or until it can not be practically reduced further. A key point in the USA program is who *makes* the risk decision. The commander, leader, or individual responsible for executing the mission is authorized to accept MODERATE to LOW risk levels. Anything higher must be elevated to the next level in the chain of command.

Step # 4 Implement Controls - Two types of controls used in the USA program are educational and physical. Educational controls are based on knowledge and skills of units and soldiers. Controls of this nature are put in place by training or “Train Up” for the specific *tasks*. Rehearsals, reaction drills to specific hazards fall into this category. Physical controls may take the form of barriers and guards established to warn individuals and units that a hazard exists.

Step # 5 Supervise and Evaluate - Strong command and discipline are essential for the control measures to be effective. The controls must be enforced. In addition, the hazards and control measures must be addressed in the after-action review to capture *lessons learned* for future operations.⁹

One example how the USA translates the Five Step Process of risk management into practice is by using risk matrices as seen in Figure -1 below:

Figure. 1. Suggested format for a risk assessment worksheet.¹⁰

Risk Assessment Worksheet: Operation _____

Side A Planning

Circle One	Risk Value			Score ____
Guidance	Preparatory Time			
	Optimum	Adequate	Minimum	
FRAGO	3	4	5	
OPORD	2	3	4	
OPLAN/LOI	1	2	3	

Side B Weather

Circle One	Risk Value			Score ____
Temperature (°F)	Visibility/Moisture			
	Clear/Dry	Partly Cloudy	Rain/Snow/Ice/Dust	
<31° or >80°	3	4	5	
32° - 59°	2	3	5	
60° - 79°	1	2	5	

Mission Control

Circle One	Risk Value			Score ____
Task Organization	Training Event			
	Scenario/Threat/Ground	Day Tactical	Night Tactical	
OPCON	3	4	5	
Attached	2	3	4	
Organic	1	2	3	

Terrain

Circle One	Risk Value			Score ____
Type of Terrain	Preparatory Time			
	Improved	Secondary	Third Cross Country	
Mountain	3	4	5	
Desert/Jungle/Hills	2	3	4	
Flat/Rolling	1	2	3	

Soldier Endurance

Circle One	Risk Value			Score ____
Environmental Preparation	Soldier Preparation			
	Optimum	Adequate	Minimum	
Non-acclimated	3	4	5	
Partially Acclimated	2	3	4	
Acclimated	1	2	3	

Sustainability

Circle One	Risk Value			Score ____
Percent of Personnel Full	Type of System			
	Wheeled	Track	Crew Served	
0-65%	4	5	5	
66-79%	2	4	4	
80-100%	1	2	2	

Soldier Selection

Circle One	Risk Value			Score ____
Task	Soldier Experience			
	Highly Qualified	MOS Qualified	Untrained	
Complex	3	4	5	
Routine	2	3	4	
Simple	1	2	3	

Side A Subtotal _____

Subtotal Side B _____ Subtotal Side A _____ Total _____

0 to 12
Low Risk

13 to 23
Caution

24 to 25
High Risk*

* High-risk operations assigned a value of 24-25 require coordination, before executing the mission, with the next higher level of command external to the organization making the assessment. When two or more areas are assigned a risk factor of 5, the overall rating is high risk.

The USA Five Step Process is traditionally applied at the tactical command levels. Can this process be applied at complex joint operational-strategic levels?

Risk Management Bridges Between Strategic-Operational-Tactical Command Levels

Hazards at the different command levels are not the same. If a Five Step Process is to be used throughout every level, hazards at each level must be understood. Along with hazards, operational-strategic commanders must also consider *shortfalls*.

Shortfalls are defined as the lack of forces, equipment, personnel, materiel, or capability apportioned to a CINC (Commander of a unified or specified command) for planning, that would adversely affect the command's ability to accomplish its mission.¹¹

Hazards at the tactical level tend to be primarily *physical* in nature. Hazards at the operational-strategic level are often *abstract and intangible*. For example, suppose an enemy uses chemical warfare: Managing the risks at the tactical command level would involve, at a minimum, training to properly don protective gear and administer antidotes. Managing the risks at the operational-strategic command levels would involve assessing the enemy's *capability* and *probability* of using such a weapon, along with other military and political ramifications, should the weapon be employed. A **shortfall** at the operational-strategic level might translate into a shortage or lack of protective gear or antidote. Certainly, executing a plan or mission, unaware or unprepared for chemical attack could prove a tactical and strategic disaster.¹²

J-O-P-E-S Spells Risk Management

There *are* striking similarities between the principles of risk management found within the USA Five Step Process and the **Joint Operation Planning and Execution System (JOPES)**. JOPES is the integrated joint conventional command and control system used to support military operation monitoring, planning, and execution (including theater-level nuclear and chemical plans) activities.¹³ JOPES is the backbone of the military planning process. It incorporates policies, procedures, personnel, and facilities by interfacing with Automated Data Processing (ADP) systems, reporting systems, and underlying Global Command and Control System (GCCS). JOPES supports the joint planning and execution process used during peacetime operations, exercises, MOOTW, and war.

JOPES procedures provide for various levels of *decision-making* in deliberate and crisis action planning environments. JOPES includes five operational functions: *threat identification and assessment*, strategy determination, course of action development, detailed planning, and implementation. Together with the two JOPES supporting functions (simulation analysis and monitoring), they form the JOPES *methodology*.¹⁴

The JOPES procedural approach includes a *shortfall identification and risk analysis*. It contains specific procedures for the supported command to identify shortfalls between the planned requirement and the identified capability at various points in the planning process.

The supported command then attempts to resolve shortfalls, conducts risk analysis if the shortfalls are not resolved, and redefines the CINC's Strategic Concept if the resultant risk is too great.¹⁵

Risk and shortfall assessments are made during the deliberate and crisis planning stages. Risk assessments begin during the initial phase of the military planning logic called the **Commander's Estimate of the Situation (CES)**. This planning phase will ultimately yield a **Course of Action (COA)**. Once a COA is approved by higher authority, subsequent planning takes place in a step by step process, one of which is the identifications of shortfalls and risk assessment.

A similar attempt of integrating risk management into deliberate planning is used in the USA Five Step Process as seen in Figure-2 below:

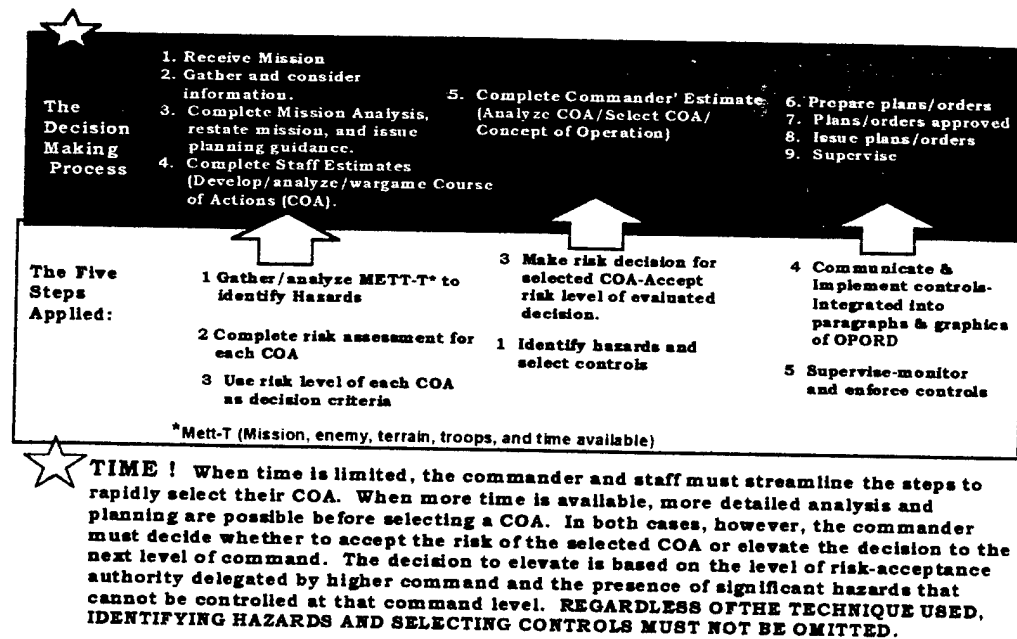


Figure. 2. USA Five Step Process placed in the decision making process.¹⁶

When time allows, deliberate planning uses many of the textbook approaches (*Formal Analysis, Bootstrapping and Professional Judgment*) mentioned earlier. Its resources include but are not limited to:

War Gaming (e.g., Trade Space Analysis), Modeling (e.g., JWARS - Joint Warfare System), JULLS (Joint Universal Lessons Learned), Strike Planning Conferences, Joint Task Force Exercises, Deployable Joint Forces Augmentation Cells, the Joint Flag Officer War Fighting Course, and more.¹⁷

Communicating the Risks

At the tactical level, a key component of the USA Five Step Process is communicating unacceptable levels of risk to the next level in the chain of command. It allows for a “time-out” or a possible “break” in the chain of events that often lead to mishaps. Failure to articulate unacceptable risks have varying degrees of consequences depending on the level of command. Ultimately, they could manifest themselves in the form of casualties to personnel and equipment, degraded mission success, or even failure of an operation.

One tool for communicating these risks for the joint operational-strategic commander is the submission of the CES which include a recommended COA.

The **Preparedness Evaluation System (PES)** provides another vehicle for the Chairman of the Joint Chiefs of Staff (CJCS), the CINC’s, and other members of the Joint Chiefs of Staff (JCS) to communicate risks and shortfalls. PES is used to evaluate the preparedness of the unified and specified commands to carry out missions assigned to the command and to specify critical deficiencies in force capabilities identified during the preparation and review of contingency plans. The major input to the PES is the CINC’s Preparedness Assessment Reports (CSPAR). A primary output is the CJCS Preparedness Assessment Report (PAR).

The CSPAR has two parts: The Detailed Assessment, which consists of data base records to document individual concerns or deficiencies, and the Narrative Report, which serves as an executive summary of overall preparedness and documents the CINC's top 20 shortfalls.

The Detailed Assessment provides visibility over a wide range of major and minor deficiencies that exist in the war fighting environment. The Narrative Report contains a section called the Overall Preparedness Summary. This section includes *a risk assessment (low, medium, high)* regarding the impact of any shortfalls on accomplishing national security objectives. Another section prioritizes shortfalls and emphasizes shortfalls requiring "critical" precedence. The development process includes an identification phase that documents individual capability deficiencies that affect a CINC's ability to accomplish the **Joint Strategic Capabilities Plan (JSCP)**—related tasking.¹⁸ Assigned tasks that accomplish objectives at the Strategic-National, Strategic-Theater, Operational and Tactical level are described in the **Universal Joint Task List (UJTL)**.

The UJTL and tactical task list manuals for the Navy, Marine Corps, Army, and Air Force are currently under development. They contain **Joint Mission Essential Tasks (JMETS)** specific to each Service branch.¹⁹

The CSPAR Detailed Assessment is submitted in automated format using the Concern and Deficiency Reporting System (CADRS) data base software. The CADRS software enables users to generate the Individual Concern and Deficiency (ICAD) reports. ICADS are generated to document specific capability shortfalls and enable subsequent management tracking. ICAD reports contain a specific field that reflects a subjective assessment of whether the concern or deficiency is critical, significant, important, or necessary to mission accomplishment.

Critical - Those deficiencies in which lack of resolution would prevent prosecution of a conflict or cause defeat (i.e., a war stopper).

Significant - Those deficiencies that could have a substantial effect on the ability to prosecute a conflict.

Important - Those deficiencies that could affect the ability to prosecute a conflict.

Necessary - Those items that are needed to improve war fighting capabilities.²⁰

For the *supporting agencies*, the **Combat Support Agency Assessment System (CSAAS)** provides a uniform system for reporting to the Secretary of Defense, CINC's, and the Secretaries of the Military Departments the readiness of each combat support agency to perform regarding a war or threat to national security. The CSAAS and the generated reports are analogous to the Preparedness Evaluation System (PES). The CSAAS primary output is the Combat Support Agency Responsiveness and Readiness Report (CSAR3).

Development procedures and precedence levels are the same used in generating the CSPAR. The PES (for the supported and supporting combatant commands) and the CSAAS (for the supporting agencies) are the systems that provide operational commanders the ability to communicate unacceptable or CRITICAL risks up the chain of command.²¹

Reports generated by the PES and CSAAS allow operational and strategic planners to lower the overall affect of *risk or shortfalls* during the strategic review of plans (a notional view of the above discussion is seen in Figure-3 below) :

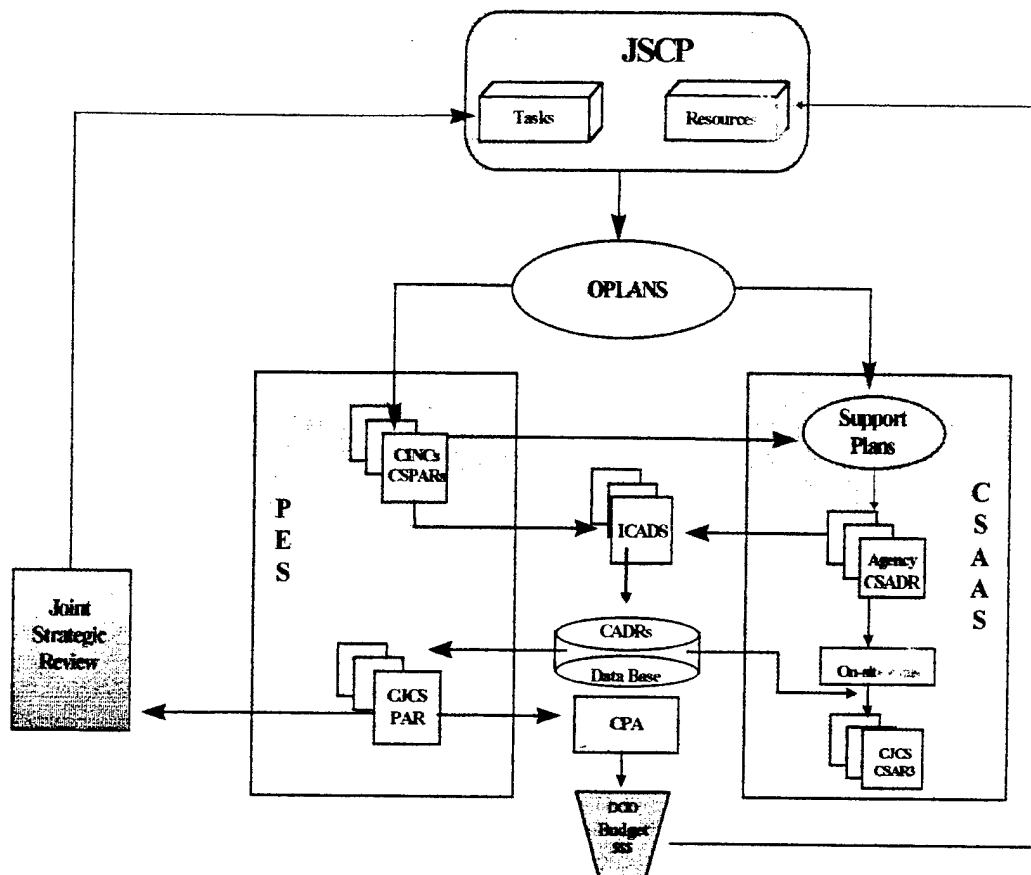


Figure. 3. CSPAR/PAR linkages and PES/CSAAS relationship.²²

The Faces of Risk Management

Regardless of the skeletal frameworks that emerge after each service branch unveils its respective programs, the marrow will be standard throughout the military, that is, the USA Five Step Process. Therefore, risk management can and will take on many faces, depending on which Service and command level one is assigned. A few examples: (1) *Bootstrapping* is disguised as the Naval Aviation Training Coordination Procedures Standardization (NATOPS), a policy manual used for decades in reducing aviation mishaps. (2) All three generic approaches are used by the US Navy Landing Signal Officer (LSO), a person placed at the aft end of an aircraft carrier to aid the Air Officer and pilot in safely recovering aircraft. LSO's use trend analysis (i.e., *Formal*

Analysis), on every landing made by a pilot. The program's policy guidance is provided by the LSO NATOPS (i.e., *Bootstrapping*). LSO's have qualification designations that identify their levels of *Professional Judgment*. Overall, the program effectively reduces the risks associated with one of the Navy's most formidable challenges, carrier landings. (3) Risk management at the strategic-operational command level is incorporated in the JOPES *methodology*. It uses all three generic approaches, depending on the time available for planning.

Preserving Resources

Certainly, the established risk management methods mentioned above have reduced the number of personnel and combat assets lost due to accidents during training, war and MOOTW. Risk management *can* be practiced during training and actual combat and helps reduce the fog and friction of war. The accidental loss of a service member or combat asset during training affects the *force*, while contributing to shortfalls; the same loss during war or MOOTW affects the *mission*. Therefore, risk management is **critical** during training and actual combat operations. Accidents contribute to a significant percentage of losses during combat as seen in Figure-4 below:

	World War II 1942 - 1945	Korea 1950 - 1953	Vietnam 1965 - 1972	Desert Shield/Storm
Accidents	56%	44%	54%	75%
Friendly Fire	1%	1%	1%	5%
Enemy Action	43%	55%	45%	20%

Figure. 4. Percentages of personnel casualties.²³

The Leadership Dividend

Research has shown that novice leaders make a larger number of *wrong* decisions than more “experienced” leaders.²⁴ *Professional Judgment* is the primary approach in the risk decision-making process of senior leaders; novice leaders often fall prey to inexperience. Risk management sets *standards* of thinking. Armed with risk management, novice leaders make a higher percentage of correct risk-decisions, lending to their *credibility and confidence*.

Conclusion

The hazards and shortfalls at each command level differ dramatically in scope and magnitude. New initiatives in establishing risk management doctrine, approaches and methods in the joint military are in their infancies. The USA Five Step Process is considered in its adolescence and continues to develop. There are established methods of risk management already in place. They succeed in using one or a combination of the three generic approaches of professional risk management (*Formal Analysis, Bootstrapping, and Professional Judgment*). Their viability within the military is no coincidence; they contain the seven qualities (listed earlier) of an acceptable approach to risk management. Renewed emphasis for risk management will continue as the initiatives are unveiled and will undoubtedly prompt future discussions. However, some final thoughts should be kept in the minds of the developers and future practitioners of risk management:

- Risk management is a *tool* for reducing risk, it is not a *panacea*.

- Adoption of the USA Five Step process into Joint Doctrine has given it legitimacy.²⁵

This doctrine will perish as a paper tiger if its practitioners are not educated and trained in basic risk management approaches and methodologies.

- Infused into leadership courses or taught separately, it is critical that novice leaders receive risk management training at all Service schools and academies before assuming responsibility of subordinates and equipment.
- Any method of risk assessment must assist human judgment, rather than try to replace it with procedures and formal methodology.
- Risk management programs must *complement* established successful policies and procedures while allowing the military to retain boldness, decisiveness, and a willingness to accept risks.²⁶

Notes

- ¹ Joint Pub 3-0, Doctrine for Joint Operations, II-3.
- ² These definitions prevail throughout USA and US Navy risk management literature.
- ³ Fischhoff, Baruch, Sarah Lichtenstein, Paul Slovic, Stephen L. Derby, and Ralph L. Keeney, Acceptable Risk, New York: Cambridge University Press, 1983, 48-50.
- ⁴ *Ibid.*, 50.
- ⁵ *Ibid.*, 51.
- ⁶ *Ibid.*, 53. Paraphrased to relate to the target audience.
- ⁷ *Ibid.*, 54. The word "military" has replaced the word "organization" to correspond with the subject group of this paper.
- ⁸ Based on telephone interviews with Dr. Carol Van Alton, USA TRADOC Command, 24 November 1996 and CDR Kathy Ozimek, USN Safety Center.
- ⁹ Five Step Process provided by Dr. Van Alton, USA TRADOC Command in their Risk Management laptop brief.
- ¹⁰ Field Manual 1-111, Aviation Brigades, Washington, August 1990, C-4.
- ¹¹ Armed Forces Staff College Pub 1, The Staff Officer's Guide 1993, Washington, 1993, 1-38.
- ¹² This example is simplistic and explains only a fractional amount of the considerations involved in chemical warfare. Further discussion is outside the scope of this discussion.
- ¹³ Joint Pub 5-03.1, Joint Operations Planning and Execution System Volume I (Planning Policies and Procedures), I-1.
- ¹⁴ *Ibid.*, I-1 to I-2.
- ¹⁵ *Ibid.*, I-3.
- ¹⁶ US Army Safety Center, TC 25-XX: A Field Reference Guide to Force Protection and Risk Management, Laptop brief, Fort Ruckers, AL: 1996. The numbers in the lower half of this figure corresponds to application of the numbered step of the USA Five Step Process.
- ¹⁷ Jenkins, N. K., "AY, There's the Rub: Risk Assessment for the Operational Commander," Unpublished Research Paper, US Naval War College, Newport, RI: 14 June 1996. Highpoints taken but discussion omitted from pages 7-11.
- ¹⁸ Joint Pub 1-03.31, Preparedness Evaluation System, CH-1 and CH-2.
- ¹⁹ Telephone interview with Mr. Leslie G. Gibbings, Project Manager, Dynamics Research Corporation, 20 December, 1996.
- ²⁰ Joint Pub 1-03.31, Preparedness Evaluation System, II-1 and A-3.
- ²¹ This conclusion is drawn after reading Joint Pub 1-03.32, Combat Support Agency Assessment System, CH-1 to A-3.
- ²² This figure is a combination of figure I-1 in Joint Pubs 1-03.31 and figure I-1 of 1.03.32 to simplify the previous discussion of the PES and CSAAS systems and how they related in communicating risk and shortfalls. CPA is the Chairman's Preparedness Assessment.
- ²³ This table was created at the USA Safety Center and reflects a range of casualty from injuries resulting in one lost working day to deaths.
- ²⁴ Comment from e-mail correspondence from the office of Dr. Carol Van Alton, USA TRADOC Command, December 1996.
- ²⁵ Integration of the USA Five Step Process will appear in the next printing of Joint Pub 5-00.2 as explained in the next note.
- ²⁶ This statement is paraphrased from the Finnegan, Sean M., "Integration of Risk Management into JP 5-00.3" Unpublished Information Paper, Joint Chiefs of Staff Joint Doctrine Directorate, Washington, DC: 1996, narrative section prior to explaining the Five Step Process.

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